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ABSTRACT

This investigation of a decade of discussion on the uses of media for adult learning continues a collection of information that was initiated in September 1974 in an earlier bibliography. This report describes the methodology and search strategies employed in a comprehensive review of research on the applications of visual and digital technologies to adult learning and major related issues as reported in the literature from June 1982 through June 1992. A review of the ERIC database found 7,144 potential entries under the descriptor "Adult Education." Searching for descriptors related to educational technology and adult education indicated that technological terms were associated with adult education 4,716 times. Many connections were found for distance education and instructional design issues, but relatively few were found for the newer aspects of technology such as compact disc systems. This distribution suggests that the field may not be using or researching the newest and most potentially effective media. The review is intended to provide discussion points for adult education practitioners and theorists. (Contains 2 references.) (SLD)

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Visual and Digital Technologies for Adult Learning

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Visual and Digital Technologies for Adult Learning

David G. Gueulette

OBJECTIVE

The primary objective of this report is to provide a rather comprehensive review of the research on applications of visual and digital technologies to adult learning and major related issues as reported in the literature from June, 1982 through June, 1992. This investigation of a decade of discussion on the uses of media for adult learning continues a collection of information that was initiated in September of 1974.

This investigation is intended to be a sequel to an earlier work: *Media and Adult Learning: A Bibliography with Abstracts, Annotations and Quotations* that reported the confluence of technology and adult learning from 1954-1974 published by Garland Publishing Company, New York in 1975, and to my previous published research on this same connection that was completed in the Spring of 1986 and published in part in: *Using Technology in Adult Education*, published by Scott, Foresman/AAACE Adult Education Series in 1986.

RATIONALE

Historically as well as currently there has been little emphasis on how to plan for, prepare, and utilize media and technology in adult education. If the use of media and technology is to be increased, adult educators must have a clearer understanding of how they may contribute to reaching educational goals and objectives. There must also be much more collaboration between adult educators and technologies.

This observation by Wes Meierhenry (1986, p. 3), a pioneer in the fields of both adult education and instructional technology, could not be stated more aptly or at a time when this important connection of methodologies is more in need of being understood and practiced. This nexus of adult learning and instructional technology is an important theme for a discussion on "visual literacy in the digital age." It is certainly time to set the stage for more collaboration between adult educators and technologies so that adult educators will have a clearer understanding of how they may reach educational goals and objectives utilizing

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exciting new visual and digital technologies.

This is an imperative mission given current developments in both delivery technologies and the systematic design of instruction/instructional design. Now is a most exciting and challenging time for adult educators to be exploring the new products and processes of technology; in particular those that result from visual and digital systems. There has been no time in history when the opportunities to enrich and expand our teaching/learning techniques have been more inviting. Consider the possibilities: the ubiquitous microcomputer, teleconferencing, satellites and global television, home videocassette recorders, visualization and memory technologies, or psychotechnologies. New devices and methods of instruction are in reach of adult educators and can provide, if not immediate practical improvements in instruction, then at minimum, the occasion to review their own individual teaching philosophies and methods.

We all understand the need for adult education practitioners and planners alike to be aware of the compelling technologies now at hand and to assist them in their selection or rejection of these systems. Not all will wish to mechanize or systemize their instruction and these choices are also appreciated. It is unlikely that those who advocate the use of instructional technologies would promote systems at the expense of the individual's right to make personal decisions regarding teaching style. Even the most technology-directed advocate of using systems could not verify that new methods are always better than traditional or conventional lectures, discussions or written exercises. Research on comparisons of mediated vs. non-mediated instruction in the last forty years has just not sustained that position. Thus, it is in the spirit of offering information, ideas and a context for the use of new and long-standing technologies alike that these findings from the fields of both adult education and instructional technology are presented.

New items identified and documented through this research augment the on-going collection and provide more timely data on the recent applications such as local area networks, instructional satellite systems, and hypermedia, all of which have visual and/or digital components. The emergence of these new media and delivery systems suggests significant instructional innovation and provides a strong rationale for investigating the topic; however, the presence of issues related to using media for adult learning also necessitates the review. Questions regarding the costs, failure of equipment, inadequate pedagogical bases for applications, improper or unethical uses, and societal impact of technology have become major issues that must be considered as well.

This suggests that it is important to assess not only the impact of specific connections of media to teaching, but to evaluate the over-all percussion of new technologies as they come up against conventional teaching/learning models. Reports on new media provide key information for investigating the field, however, current issues related to using mediation for adult learning are also in review.

Perhaps the most significant aspect of this report may be the investigation of, and improvement in, an understanding of the ways in which published reviews of

media uses for adult learning inform the practice of adult education. And, in a similar vein, how adult education activities as described in print constrain or expand the ways instructional media are employed.

It is the interplay of adult teaching/learning and visual and digital technologies that is of paramount interest; and, how the reportage of such events, in a reflexive way, conditions further reciprocal actions. It has been determined in my earlier studies that this reciprocity of effect has driven both fields in both positive and negative directions.

This relationship continues; and, in fact, has become more intense. I believe that it is important for both fields to have a sense of this connection and how the diffusion of information on applications brings about certain additional instructional developments. Unquestionably, both fields benefit from a more complete picture of this correlation. Successful uses of media for adult learning become evident and can serve as models for either or both areas. Likewise, those findings that show negative or limited value can be identified and, possibly, subsequently be used to constrain some activities.

The themes of the conversation regarding the findings are: what applications are most evident, and why are certain categories of media ascending in use, what are the most common uses of the visual and digital for adult learning, and why do some media appear to be not widely reported or ignored.

The summary will assess the applications to determine if it is possible to develop some useful generalization concerning future connections of instructional technology to adult learning. Adult learning in training, higher education or other learning environments is increasingly becoming the focus of mediated instruction. Thus, it is appropriate that the best uses of the media for adults be identified and that those cases be disseminated and modeled.

METHODOLOGY

As a result of two very extensive Educational Resource Information Center (ERIC) searches using 162 descriptors, I have identified 7144 potential entries on the applications of media for adult learning as compiled in that data base. There is a substantial number of interesting new visual and digital descriptors for locating the data which include terms such as: personal computers, microcomputers, teleconferencing, telelearning, videotext, databases and some quite recent terms such as: compressed video, CD-worm, digital video interactive, and others.

These descriptors were instrumental in identifying the literature that provides the basis for determining trends in the use of media for adult learning and tangential issues. This very large number of descriptors unearthed the extensive collection of articles, research reports and studies that constitute this nexus of media and adult learning.

Searches through the Northern Illinois University Founders Library and the associated on-line library network have provided more helpful publications that have added to this collection and thus have been included in the review.

A systematic review of the INDEXES, ABSTRACTS AND SERIAL BIBLIOGRAPHIES IN THE N.I.U. LIBRARY focused on the following areas:

American doctoral dissertations
Dissertation abstracts international
Index to U.S. Government periodicals
Newspaper index
Book review index
Library journal book review
Technical book review index
International index to film periodicals
Language teaching
Current contents: social and behavioral sciences
Social science citation index
Social science index
Communication abstracts
Index to journals in communications studies
British education index
Canadian education index
Sociology of education index
Human resources index
Information science index
Library and information science abstracts
Computer abstracts
Computer literature index
Computing reviews

This review was very time consuming and was not as rewarding in generating useful items as were the ERIC searches which, in fact, yielded almost all of the same publications.

Published reports were examined from:

Clearing House for Federal,Scientific and Technical Information
Library of Continuing Education
National Institute of Education
National Multimedia Center for Adult Education
Xerox University Microfilms

All ERIC abstracts, new published texts, annotations and published reports were examined and appropriate items sorted in or out.

As noted earlier, 7144 publications were captured that contained the descriptor ADULT EDUCATION. This term is the constant in my review of databases and all other publications. The descriptor ADULT EDUCATION, was combined with 162 other single term descriptors from the ERIC Thesaurus that suggest visual or digital technology applications. While this selection of technology terms may not include all possible words that could be broadly construed to reflect a media or technology association, this collection of descriptors is highly representative of the field of Instructional Technology and as comprehensive as practicable.

The connection of the term ADULT EDUCATION to the 162 technology terms yielded some very interesting quantitative discoveries. While it is informative to examine the extent of combinations, it is not useful to exaggerate the importance of simply counting associations. Noting the extent of the use of media for adult learning that is mentioned in the literature does not shed much light on some of the concerns that have been raised regarding the appropriate use of technology or the cost factors or effectiveness of emergent media. However, that noted, a look at the big picture of how much and what types of technologies are being used for adult education as noted in publications is very useful as a means of assessing the general magnitude of applications and current and

future directions.

Another concern that must be raised with this type of research is that it does not necessarily reflect reality. While, for example, we find that the overhead projector and transparency do not figure large in the literature of this review, many surveys of adult learning environments have found that this medium is widely and intensively used in virtually all adult education environments. Common sense and observation support this point. So, it would be an error to assume that because we have very complete data on the nexus of adult education and technology terms as it appears in the literature, that this alone gives an accurate and complete picture of the uses of media for adult learning.

Given these two very serious limitations of a review of this sort, what then is the merit of such a critique. This snapshot of the field is especially valuable if it is compared against earlier similar data so that it may be possible to observe and evaluate trends in media use or the expansion or diminution of particular applications.

There is the argument that the literature reflects experimentation and investigation of ideas and applications more than simply reporting on traditional and successful and practical pedagogical techniques. An analysis of the literature yields more on the directions of uses and the successes and failures of new ideas and activities than assessments of more conventional mediations.

With this framework, then, it is useful to share some of the quantitative results of the combining terms methodology employed in this investigation.

DISCUSSION

Of the 7144 items that the descriptor ADULT EDUCATION yielded in this review, 581 were connected with the very broad descriptor, TECHNOLOGY. This association is without question the most frequently observed. The term TECHNOLOGY is so broad that it can encompass practically any kind of electronic, mechanical or hardware/software supportive instructional resources. It is not surprising that this descriptor is the most commonly found constituting 8 percent of the total of ADULT EDUCATION connections.

At 338 connections the term INSTRUCTIONAL MATERIALS is also so broad as to be found in a substantial number of reports. The term can have a wide range of meanings, and can include almost any kind of software from handouts to videocassettes. Likewise the term MEDIA is very inclusive and, not surprisingly, is found with 296 reports.

DISTANCE EDUCATION is cited in 286 publications, and while it can include a variety of delivery techniques from correspondence education via postal services to sophisticated interactive full motion video, nonetheless, it seems safe to say that this represents the most commonly noted mediated instructional approach for adult learners.

The term COMMUNICATIONS, also a very broad term that can specify either technological or human exchanges, is associated with 211 articles. PROGRAMMING with 168 intersects can have multiple meanings that are related to technology such as developing the

operating activities for computer software to non-technology endeavors such as providing staff development.

The next three descriptors: C.A.I. (COMPUTER ASSISTED INSTRUCTION) at 166, COMPUTERS at 148 and MICROCOMPUTERS at 133 cluster together and suggest that at minimum about 2 percent of all reports mention a computer application.

MATERIALS DEVELOPMENT at 137 and EDUCATIONAL RESOURCES at 128 do not suggest much as these terms also are extremely vague with multiple and varied meanings. EDUCATIONAL TECHNOLOGY at 122 also indicates only a very general association of ADULT EDUCATION and some not well specified types of mediation.

However, E.T.V. (EDUCATIONAL TELEVISION) is a great deal more specific in its meaning and at 90 connections provides a better picture of mediation than several of the previous terms. E.T.V. figures in about .125 percent of the literature. TELECOMMUNICATION at 85 and TELECONFERENCING at 64 connections respectively suggest nominal activity.

INSTRUCTIONAL DESIGN with 77 references is also just barely noticed in the survey as is COMPUTER ORIENTED PROGRAM with 75. MASS MEDIA is at 59 and COMPUTER LITERACY at 58 both terms yielding a very tiny percentage of the total field.

DATABASE is also a descriptor with multiple and thus imprecise meanings and at 56 hits does not say much about the magnitude of use in adult education situations.

SIMULATION at 55 is a term with both technology and non-technology meanings. For example it can be either interactive computer software that creates a life-like environment or games that involve only people interacting with each other.

At 50 associations, TELECOURSES is a fairly specific term that indicates there is at least some reporting of the application of television to adult learning in organized courses.

AUDIO in its various forms occurs 49 times in the survey. INFORMATION NETWORKS, that is formal or informal systems of exchanging information in electronic or other means, appears 46 times. The descriptor FILMS shows up in 43 instances and MEDIA SELECTION associates with 43 items as well.

COMMUNICATIONS SATELLITES connects with 31 ADULT EDUCATION reports while C.M.I. (COMPUTER MANAGED INSTRUCTION) joins with 23.

TELEPHONE INSTRUCTION makes a juncture with 6 items, TOYS with 5 and FACSIMILE TRANSMISSION with only 1.

One can make some interesting observations or assumptions regarding the degree of occurrence of junctures as noted from this review. The combined total of all technology related descriptors that connect with ADULT EDUCATION is 4716. Of course, there would be many overlapping uses of terms in reports. A case in point, a report on using TELECOURSES for ADULT

EDUCATION would almost certainly also employ words such as DISTANCE EDUCATION or EDUCATIONAL TELEVISION. Of the descriptors selected for this study there are many that appear frequently together.

Still in all, it is interesting to note that of the 7144 items investigated technology citations appear 4716 times. It is not useful, however to make much of the fact that these 4716 descriptors represent 66 percent of 7144, the total of ADULT EDUCATION references. There is no way of knowing from this study the exact number of items that mention ADULT EDUCATION without reference to one or more of the technology related terms. Therefore, it is impossible to suggest with any confidence the number of cases where some sort of mediation is used as compared to the number where no mediation or technology is reported. One day it may be possible to sort out this relationship.

It is not surprising to find 286 DISTANCE EDUCATION connections. Lately professional journals and conference presentations are focusing on the increasing attention being paid to delivering adult education via electronic means over distance or barriers. The 6 associations with TELEPHONE INSTRUCTION seem somewhat low given that this method of instruction is often found with distance delivery schemes. But, perhaps, like the ubiquitous OVERHEAD PROJECTOR, telephone instruction is just accepted as normal and not given much attention in the literature.

References to television or video in all its forms, E.T.V., VIDEOTAPE CASSETTES, COMPRESSED VIDEO and so on do not show up as much as common sense and observation tell us they should. Very likely these applications suffer neglect in the literature as well. In the earlier studies in this series, television with fewer related descriptors appeared much more often as compared to the total number of ADULT EDUCATION items. This is also true for COMPUTERS with related descriptors. The last review of the literature completed in 1984 revealed significantly more connections of both television and computer related descriptors as compared with a set of items with the descriptor ADULT EDUCATION only half as large.

It is not so much that our collective interest in these technologies is dwindling as there is a great expansion of many other topics or ideas that are being explored. Reports on visual and digital technology applications seem to be increasing arithmetically, while the number of articles on various and diverse other topics in the field of adult education is growing geometrically.

And, the relatively small number of reports on technology may reflect a growing acceptance of these methods for solving instructional problems. This acceptance might be shielding examples of mediating instruction for adults from scrutiny in the journals.

It is heartening to find increasing references to INSTRUCTIONAL DESIGN and ADULT EDUCATION, as a good deal more attention to organizing and systematizing instructional experiences for adults is called for. This connection has been slow in coming forth. The descriptor did not appear at all in the first study of the field and then only nominally in the second inquiry. The resistance to

instructional design that appears to have characterized preceding decades is probably being overcome by young adult educators who draw upon exposure to and success with this powerful technology.

One might also expect the descriptor FAX to emerge in new reviews. Interestingly, the term FACSIMILE was noticed in the first survey, did not appear in the second, now has emerged once more.

Another surprise was the unexpected 5 findings of the term TOYS associated with ADULT EDUCATION. An examination of the articles did not uncover a pattern of using toys for adult learning, but rather random applications for special adult learners and as a connection with games and for assessing toys in general as educational appliances.

The lack of citations for the descriptors CD WORM, AUTHORING SYSTEMS, COMPUTER HYPERMEDIA SYSTEMS, COMPRESSED VIDEO and DIGITAL VIDEO INTERACTIVE and other new terms is somewhat perplexing and disquieting. One would hope to find some references to these new and exciting technologies. The fact that descriptors for some of the very newest systems do not connect with ADULT EDUCATION must raise a question concerning the willingness of the field to consider the most current and potentially effective media.

Seven to ten years from now, a similar review might add to the longitudinal data already compiled. While it is not possible to derive any significant generalizations from the quantitative findings, it is useful to assess the direction and magnitude of the literature that is the nexus of ADULT EDUCATION and TECHNOLOGY.

THE SEARCH

ADULT-EDUCATION	7144
TELEPHONE-INSTRUCTION	6
TELECOURSES	50
TELECOMMUNICATIONS	85
TELECONFERENCING	64
DIAL-ACCESS-INFORMATION-SYSTEMS	0
PUBLIC-TELEVISION	8
CABLE-TELEVISION	15
CATV	0
CLOSED-CIRCUIT-TELEVISION	5
COMMUNICATIONS-SATELLITES	31
EDUCATIONAL-TELEVISION	90
TELEVISION-RESEARCH	5
TELEVISION-CURRICULUM	1
TELEVISION-VIEWING	11
MICROTEACHING	5
BROADCAST-TELEVISION	9
COMMERCIAL-TELEVISION	1
COLOR-TV	0
TELEVISION-COMMERCIALS	0
BROADCAST-INDUSTRY	6
BROADCAST-RECEPTION-SYSTEMS	0
BROADCAST-RECEPTION-EQUIPMENT	0
PROGRAMMING	168
COMPUTERS	148
DIGITAL-COMPUTERS	1
CYBERNETICS	0
COMPUTER-GRAPHICS	8
INPUT-OUTPUT	4
INSTRUMENTATION	8
DISPLAY-SYSTEMS	0
MINICOMPUTERS	0
MICROCOMPUTERS	133
PERSONAL-COMPUTER	0
VIDEO-EQUIPMENT	10
VIDEOTAPE-CASSETTES	7
VIDEOTAPE-RECORDINGS	37
VIDEOTAPE-RECORDERS	2

VIDEODISC-RECORDINGS	2
AUDIOGRAPHIC-CONFERENCE	0
AUDIO-TUTORIAL-INSTRUCTION	0
CD-WORM	0
COMPUTER-HYPERMEDIA-SYSTEM	0
COMPUTER-CONFERENCE	0
COMPRESSED-VIDEO	0
COMPUTER-MULTIMEDIA-SYSTEM	0
COMPUTER-NETWORK	0
DIGITAL-VIDEO-INTERACTIVE	0
PERSONALIZED-SYSTEM-OF-INSTRUCTION	5
PROGRAMMED-TUTORING	0
SUGGESTIVE-ACCELERATIVE-LEARNING-AND-TEACHING	0
TELECTURE	0
VIDEO-TELECONFERENCE	0
AUDIO-TELECONFERENCE	0
AUTHORING-SYSTEM	0
COMPUTER-ORIENTED-PROGRAMS	75
COMPUTER-PROGRAMS	14
BRANCHING	2
ARTIFICIAL-INTELLIGENCE	6
AUTHORING-AIDS	0
FEEDBACK	107
COMPUTER-ASSISTED-INSTRUCTION	166
COMPUTER-BASED-INSTRUCTION	0
COMPUTER-MANAGED-INSTRUCTION	23
COMPUTER-ASSISTED-CLASSROOM-LABORATORIES	0
COMPUTER-ASSISTED-LABORATORY	0
COMPUTER-LITERACY	58
AUDIO	49
EDUCATIONAL-MEDIA	46
MEDIA	296
MASS-MEDIA	59
MEDIA-SELECTION	43
MASS-MEDIA-TECHNOLOGY	0
MEDIA-TECHNOLOGY	0
MEDIA-&-TECHNOLOGY-FOR-HUMAN-RESOURCE-DEVELOPMENT	1
MULTIMEDIA-INSTRUCTION	1
COMMUNICATIONS	211
ELECTROMECHANICAL-TECHNOLOGY	6
TECHNOLOGICAL-ADVANCEMENT	0
TECHNOLOGICAL-LITERACY	9
TECHNOLOGY	581
TECHNOLOGY-TRANSFER	34
EDUCATIONAL-INNOVATION	69
EDUCATIONAL-EQUIPMENT	7
EDUCATIONAL-TECHNOLOGY	122
ELECTROMECHANICAL-AIDS	1
ELECTRONIC-EQUIPMENT	8
VISUAL-LITERACY	5
MAN-MACHINE-SYSTEMS	5
AUDIOTAPE-RECORDERS	2
AUDIODISC-RECORDINGS	0
TAPE-RECORDERS	0
DATABASE	56
INFORMATION-SERVICES	39
PUBLIC-HOTLINES	0
INFORMATION-PROCESSING	12
INFORMATION-THEORY	1
INFORMATION-SOURCES	59
INFORMATION-NETWORKS	46
ONLINE-SYSTEMS	12
AUDIO-EQUIPMENT	1
AUDIODISK-RECORDINGS	0
AUDIOTAPE-RECORDINGS	8
AUDIOTAPE-CASSETTES	4
MAGNETIC-TAPE-CASSETTES	2
MAGNETIC-TAPES	3
TAPE-RECORDERS	2
INSTRUCTIONAL-SYSTEMS	6
INSTRUCTIONAL-DESIGN	77
INSTRUCTIONAL-DEVELOPMENT	36
SYSTEMS-APPROACH	38
SLIDES	22
SLIDE-PROJECTORS	0
PHOTOGRAPHY	10
ANIMATION	5

FILM-INDUSTRY	0
FILMS	43
INSTRUCTIONAL-FILMS	8
SINGLE-CONCEPT-FILM	0
PROJECTION-EQUIPMENT	4
ELECTRONIC-CLASSROOMS	1
LANGUAGE-LABORATORIES	1
TEACHING-MACHINES	1
INDIVIDUALIZED-INSTRUCTION	109
INDIVIDUAL-INSTRUCTION	15
AUTOINSTRUCTIONAL-AIDS	26
PROGRAMMED-INSTRUCTIONAL-MATERIALS	15
PROGRAMMED-INSTRUCTION	7
CALCULATORS	3
EDUCATIONAL-GAMES	15
SIMULATION	55
COMPUTER-SIMULATION	5
MICROGRAPHICS	0
MICROPHOTOGRAPHY	0
MICROFILM	3
MICROFORM-RECORDERS	0
MICROFORM-READERS	0
MICROFORMS	0
MICROFICHE	15
COMPUTER-OUTPUT-MICROFILM	0
VISUAL-AIDS	13
INSTRUCTIONAL-AIDS	0
MATERIAL-DEVELOPMENT	137
INSTRUCTIONAL-MATERIALS	338
EDUCATIONAL-RESOURCES	128
LEARNING-RESOURCES-CENTERS	7
LEARNING-LABORATORIES	12
OPAQUE-PROJECTORS	0
OVERHEAD-PROJECTORS	1
TRANSPARENCIES	0
FILMSTRIPS	11
FILMSTRIPS-PROJECTORS	0
NONPRINT-MEDIA	1
TOYS	5
AUDIOVISUAL-CENTERS	3
AUDIOVISUAL-AIDS	39
AUDIOVISUAL-COMMUNICATIONS	5
AUDIOVISUAL-INSTRUCTION	9
VIDEOTEX	9
FACSIMILE-TRANSMISSION	1
TELEGRAPHIC-MATERIALS	0
DISTANCE-EDUCATION	286

CONCLUSION

I have been involved in the study of the implications of using media for adults both as a continuing research interest and teaching activity for all of my professional life. It seemed appropriate to update the media and adult learning studies of 1975 and 1986 to maintain my own knowledge in the field and also to provide this information to students and colleagues.

The results of this inquiry are being used in courses at Northern Illinois University: Instructional Technology Administration, Instructional Technology Survey, Instructional Technology for the Future, and Media for Diverse Cultures.

The findings are serving as a basis for several articles in professional journals and for presentations at the American Association for Adult and Continuing Education Conference in Dallas, Texas, November of 1993 and the Association for Educational Communications and Technology Conference in Nashville,Tennessee, February, 1994.

In particular this review may provide discussion points for those adult education practitioners and theorists who will be making decisions on the uses of visual and digital instructional technologies in our dramatically changing World of the 21st Century. While we can only guess at what the future will hold with regard to new uses of

technologies for adult learning, it is probably not what we can predict with any certainty. Studies on this connection over the last twenty years support this position. It is more the limited role that the literature plays in informing practice, regrettably, than in obtaining a clearer view of the direction of applications of media. It is unfortunate to conclude that what we read and ponder from the literature at this nexus of two very robust fields provides very little guidance on either the practice or theory of adult education.

The challenge put forth by Wes Meierhenry (1986, p. 3) in the introductory section of this report that, "There must also be much more collaboration between adult educators and technologies," can not, in my view, be achieved through examinations of published materials alone. This exchange must take place in demonstrations, face-to-face discussions and lively confrontations. Mostly, however, progress seems to come about from working with each other, sharing ideas in conversations and borrowing practices from those whom we model.

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